CASE STUDY

Healthcare

Salem Hospital Modernizes Healthcare by Mobilizing More Than 300 Medical Applications

Salem Hospital, part of Salem Health, is one of the largest acute-care hospitals and the busiest Emergency Department in the state of Oregon. With over 450 licensed acute-care beds, the expansive Salem Hospital campus consists of five large buildings providing comprehensive in-patient, out-patient services to the local community.

In an effort to improve quality of care and patient satisfaction, Salem Hospital wanted to mobilize its existing data and voice services running out to the point of care. Of particular interest were:

- Epic Systems' EMR and hospital automation applications to be run on >300 Dell and JACO-brand Computers on Wheels (COWs), and on numerous clinician laptops
- On-campus voice communications using >1,000 Ascom single-mode Voice over Wi-Fi devices
- Guaranteed in-building coverage for Blackberry dual-mode (cellular and Wi-Fi) phones operating with Unified Mobile Access (UMA) technology.
- Secure guest access for visitors and patients

The Technology Selection Process

Realizing the scale and mission-criticality of wireless networks needed throughout the hospital, Ken Kudla, CIO at Salem Hospital implemented an in-depth technology evaluation process. Multiple enterprise wireless LAN brands were evaluated using two main criteria: scalability to hospital-wide wireless access and the ability to deliver reliable connectivity for voice and data on the same network. Provisioning, deployment, troubleshooting, and manageability were also considered.

To simulate a real-life scenario, different vendors' solutions were put up in Salem Hospital's wireless-unfriendly indoor and outdoor environments. The wireless networks were then evaluated for providing adaptive wireless coverage, voice and data co-existence and jitter-less voice roaming. The Aruba deployment provided consistent coverage both inside and outside. This was in stark contrast with deployments of competing solutions, which were cumbersome to install and proved unable to provide continuous coverage due to roaming delays and interference.

At the conclusion of the tests, Aruba's offering was noted for its Adaptive Radio Management (ARM), quality of service (QoS) and ease of deployment capabilities, which together ensure that mission-critical applications run reliably and without redesigning the existing network.

Mr. Kudla noted, "The competition was between solutions from Aruba and Cisco… and the Aruba solution offered through their partner, Structured Communications, won. Aruba's 802.11n solution just worked in our harsh wireless environment without requiring manual tweaks and in the end was way more cost-effective than the other solution, as it did not require us to upgrade the existing Cisco wired network for advanced POE support."

Scalable Wireless LANs For Multi-purpose Mobility

Aruba's Adaptive Radio Management (ARM) technology automatically optimizes Wi-Fi performance, an essential requirement in the dynamically changing and challenging RF environment typical of a healthcare

Salem Hospital
A part of Salem Health

Solution:

- Roughly 1,000 802.11abgn Access Points
- Centralized Mobility Controllers
- Policy Enforcement Firewall Module
- AirWave Wireless Management Suite
- Remote Access Points for clinics

Benefits:

- Reliably operates thousands of voice and data devices over one common wireless network using Adaptive Radio Management technology
- Guest Internet access that meets security and regulatory requirements using built-in role-based firewall and wireless intrusion prevention
- Central management of the entire network with the AirWave Wireless Management Suite
- Easily and securely extends hospital-like networks to remote facilities

facility. By automating site surveys and using infrastructure-based controls to optimize the performance of Wi-Fi clients in real-time, ARM helps ensure that data, voice, video, telemetry and guest traffic applications all have sufficient network resources, including airtime, to operate reliably.

Aruba's policy-enforcement firewall network provides identity-based security, Quality of Service (QoS) control, and traffic management capabilities. The firewall classifies network traffic on the basis of user identity, device type, location, and time of day, and provides differentiated access for different classes of users. For example, voice traffic can be assigned a high priority and given reserved bandwidth to ensure reliable delivery.

Leveraging these unique features, Salem Hospital today delivers pervasive 802.11a/b/g/n wireless LAN connectivity for nearly 300 medical applications throughout its hospital campus and many of its affiliated remote sites. These applications include billing, scheduling, EMR access, order entry, voice communications and guest access. Salem Hospital maintains its roughly 1,000 access point network across multiple buildings utilizing centralized controllers used for policy-enforcement, and the AirWave Wireless Management Suite which enables centralized network management.

"With the Aruba wireless network reliably supporting both voice and data services, we have reduced the number of VLAN's we need. This makes the IT department's life easier and will save the hospital a significant amount of dollars in the near future. In fact, we are now planning to reduce the number of wired ports we need during upcoming wired switch refresh projects."

Extending Hospital-like Connectivity

Building on the successful campus mobility project, Mr. Kudla is now replicating hospital-like services in clinics and doctor's offices affiliated with Salem Hospital using Aruba's Remote Access Point (RAP) technology. Leveraging the same centralized controllers used in the hospital campus, Aruba's RAPs securely extend the LAN from the hospital, across business-grade cable or DSL connections, to its remote facilities. RAPs require no on-site configuration and minimal infrastructure at the remote end (no more than a power and internet connection). In a matter of minutes, hospital-like wired and wireless connectivity to clinical data and voice applications is available in the remote location. As an extension of the Aruba network in the hospital campus, common security policies and management systems are used for RAPs.

"Aruba's integrated remote access point capabilities were a big selling point for us. We can quickly and securely get remote sites up and running with the same network services as a hospital," commented Mr. Kudla. "We can have a simplified footprint in each remote site and still maintain a ubiquitous security architecture."

Summary

Salem Hospital reliably mobilized mission-critical clinical applications and voice communications to the point of care using Aruba's 802.11a/b/g/n wireless network throughout its campus and remote facilities. Aruba's solution, through Structured Communications, was selected because of its unique Adaptive Radio Management capabilities that ensure uninterrupted operation of voice and data devices on one network; as well as built-in security capabilities that enable guest internet access to visitors on the same network. Compared to other solutions, Salem Hospital found Aruba's 802.11n solution to be the easiest to install and one that did not require costly upgrades to the existing wired network. Salem Hospital is realizing tangible savings using Aruba's Remote Access Points to securely and economically extend the hospital network to remote facilities; and expects to achieve greater savings by reducing reliance on wired networks during wired network upgrades.

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Company Overview:

Salem Hospital currently operates the busiest emergency department in the state. In addition to trauma care, the hospital also focuses heavily on heart care, cancer services and spine triage. There will be an entire floor in the new tower dedicated to heart care, and another to neurosurgery.

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Ken Kudla
CIO
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